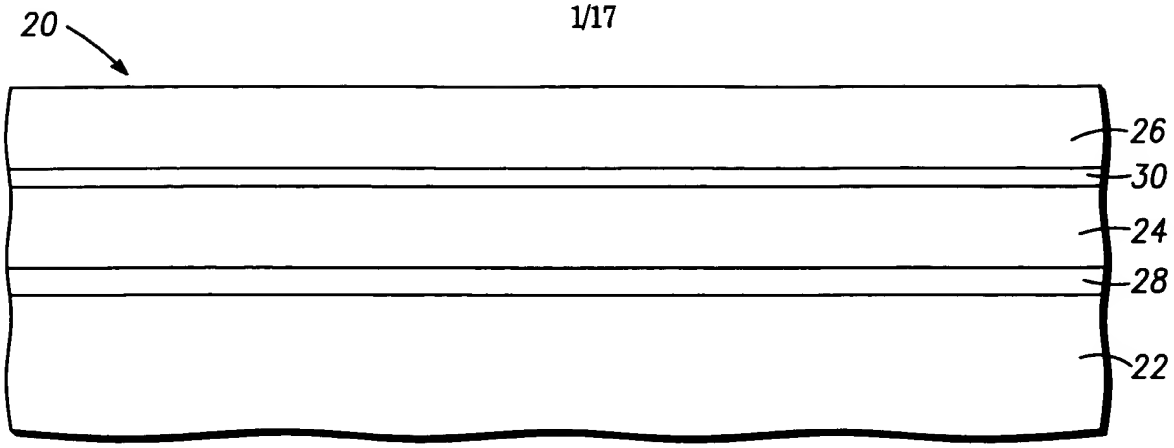

FIG. 1

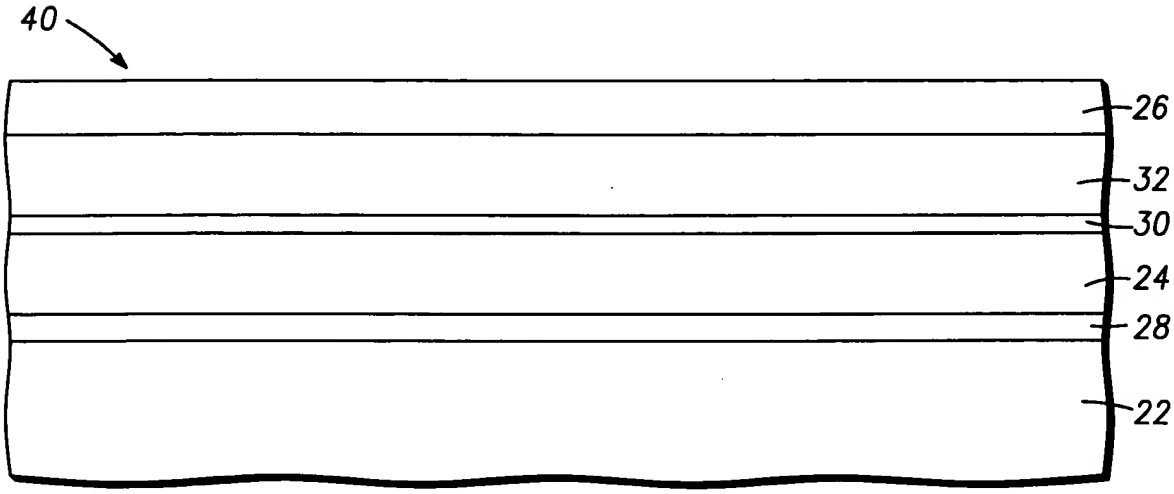

FIG. 2

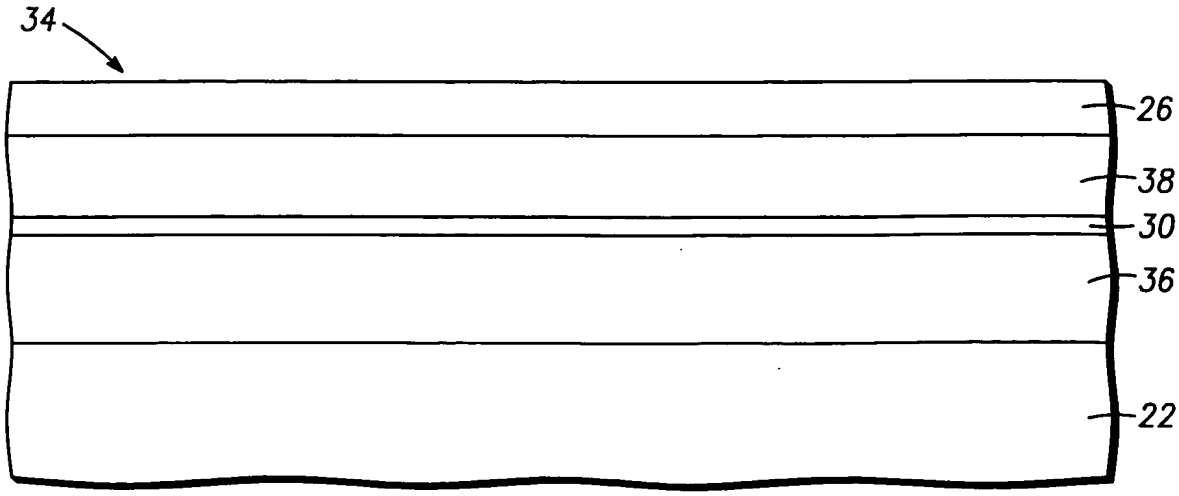

FIG. 3

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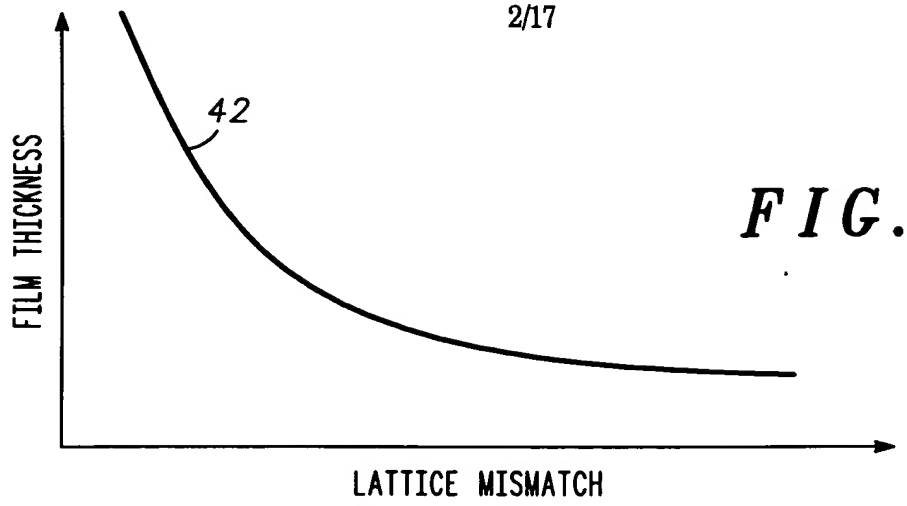

FIG. 4

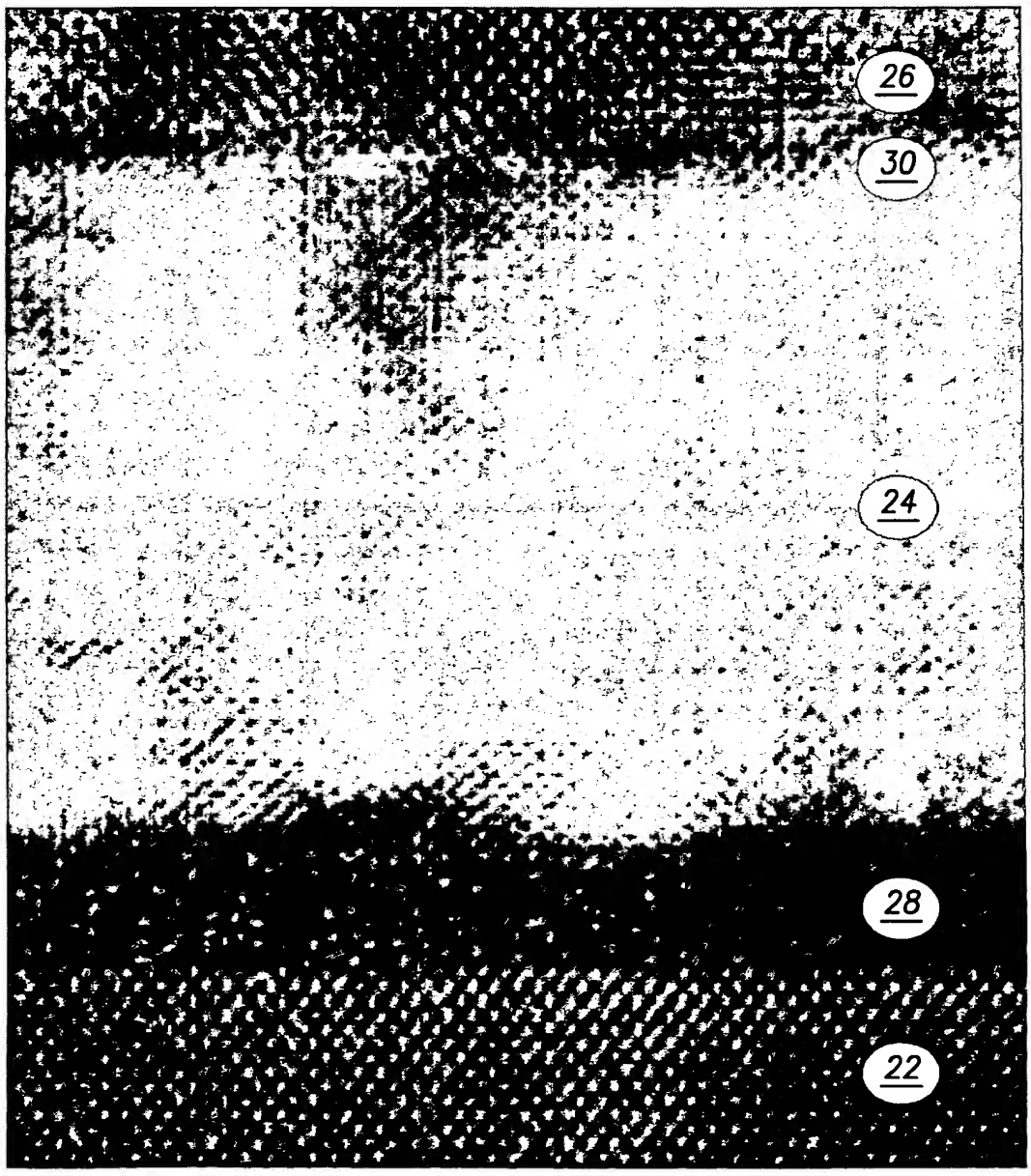

FIG. 5

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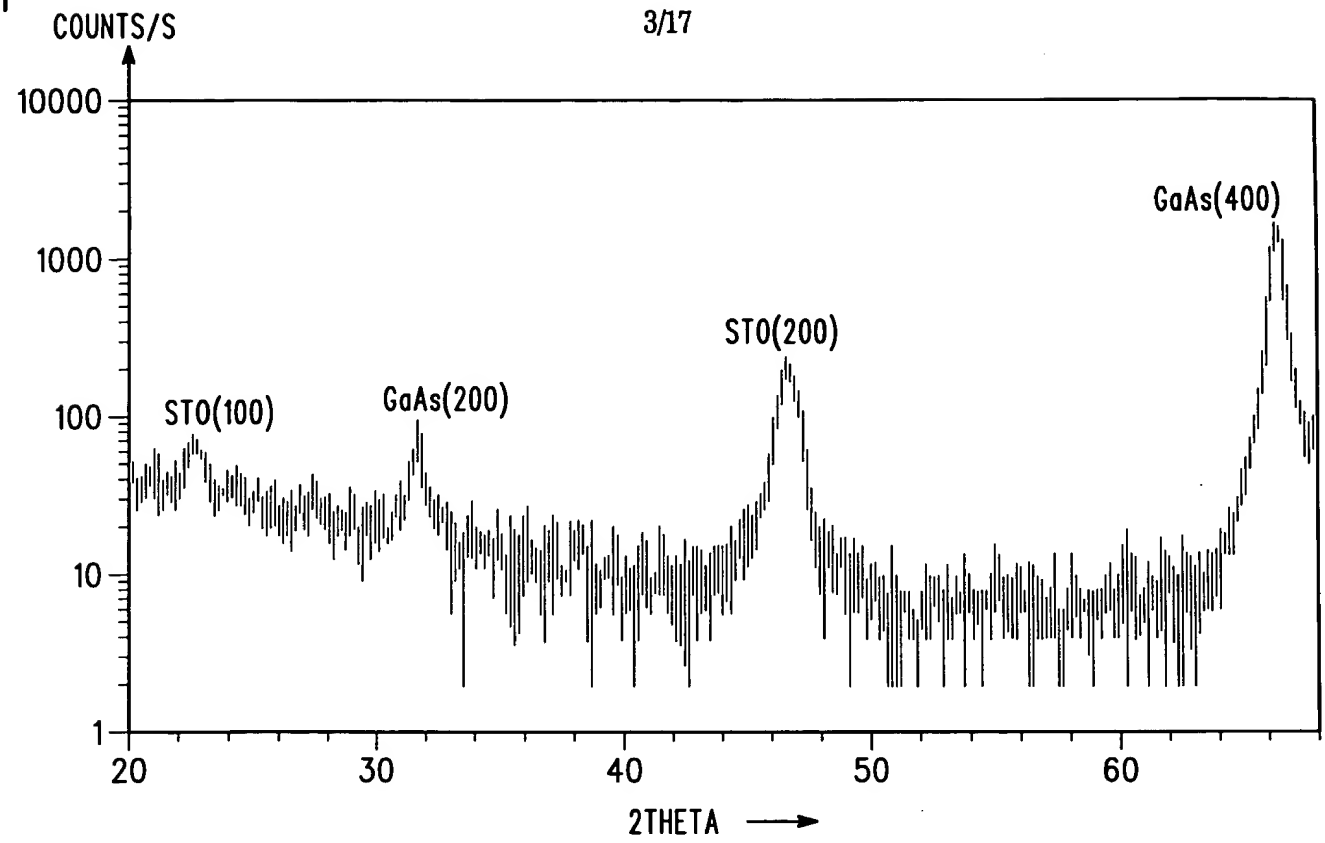

FIG. 6

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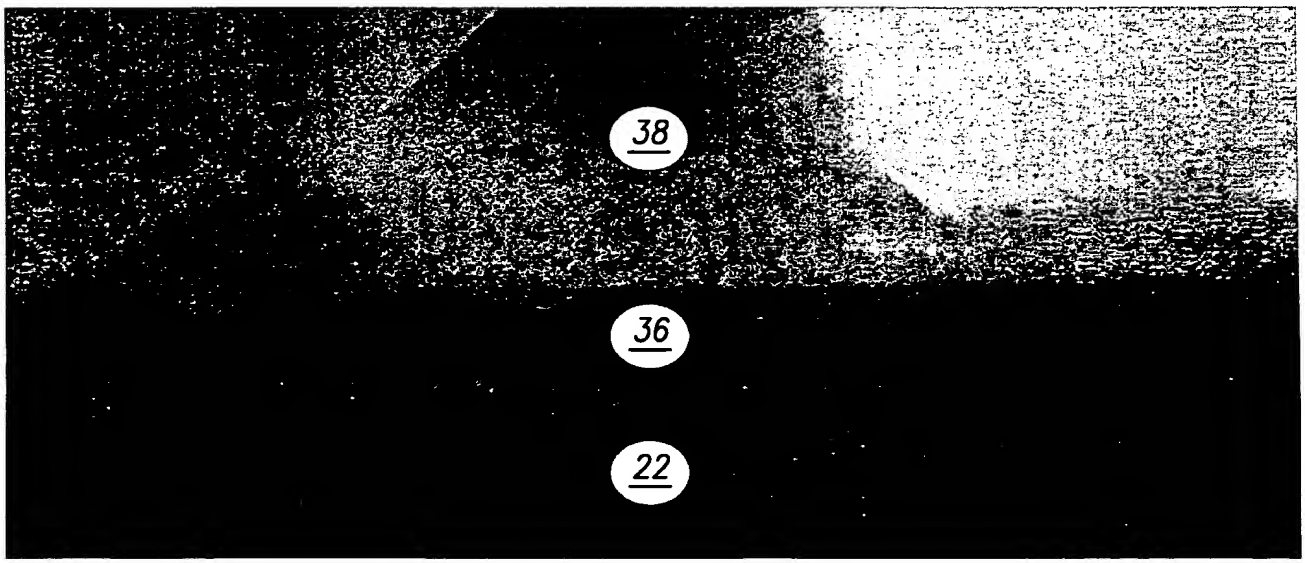

FIG. 7

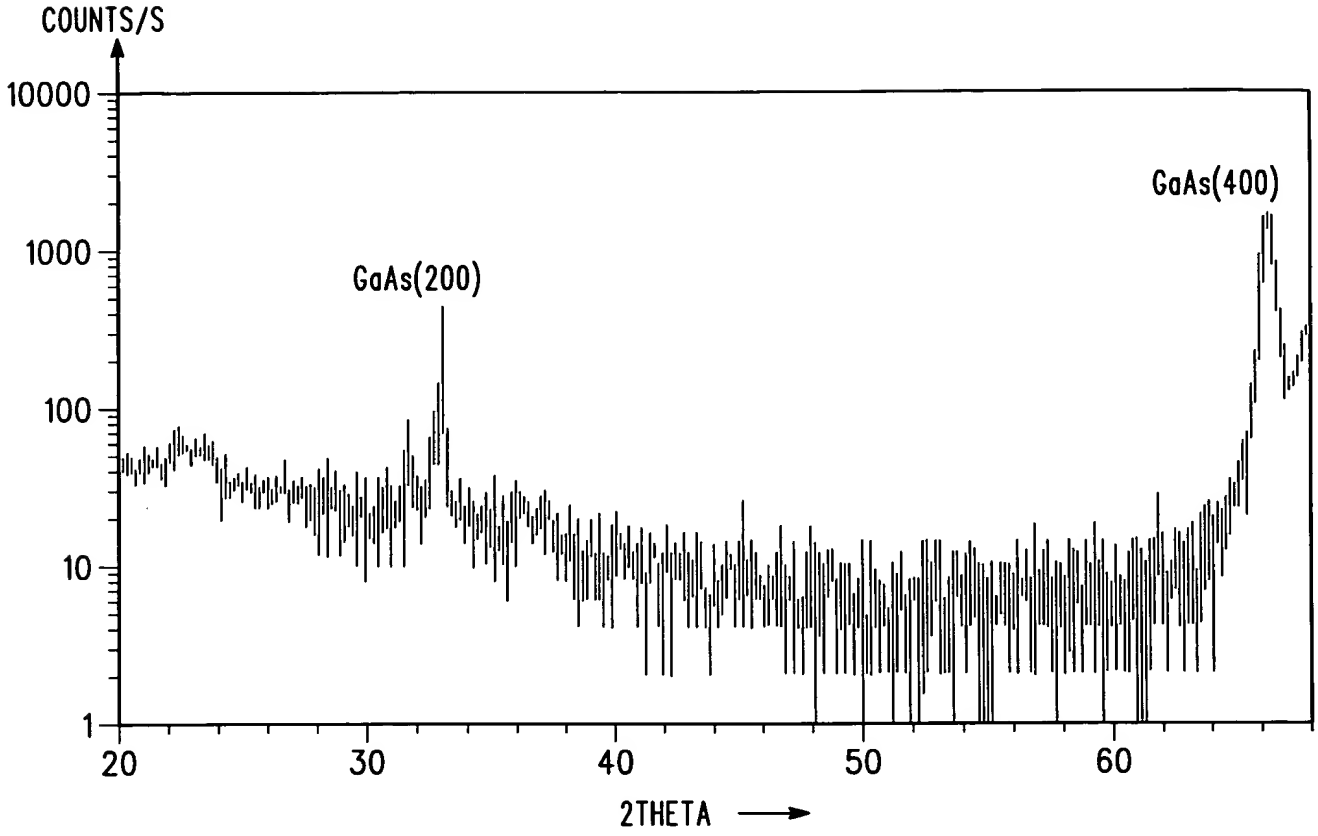

FIG. 8

09604804.040698

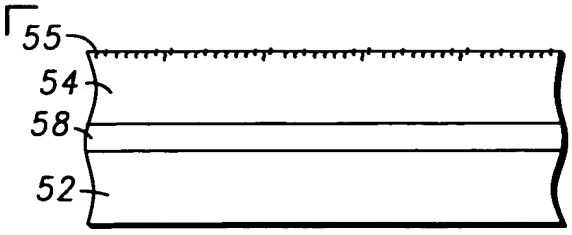

FIG. 9

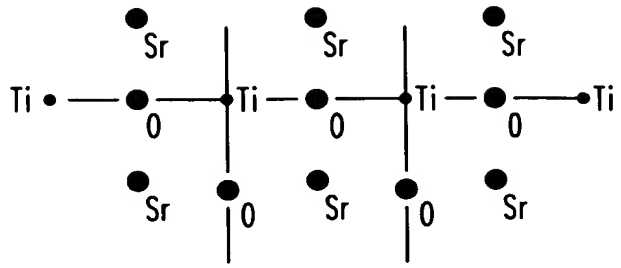

FIG. 13

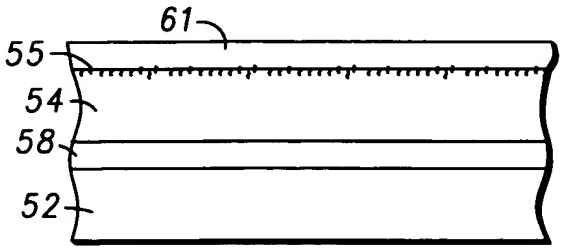

FIG. 10

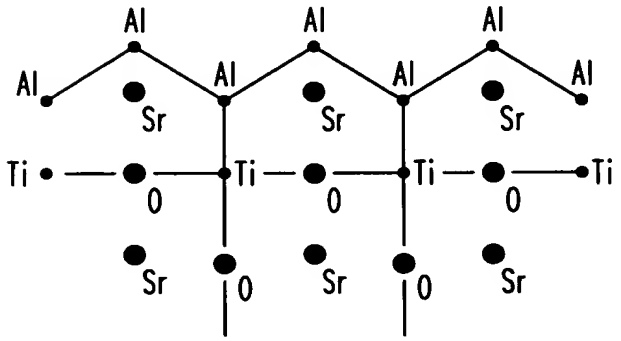

FIG. 14

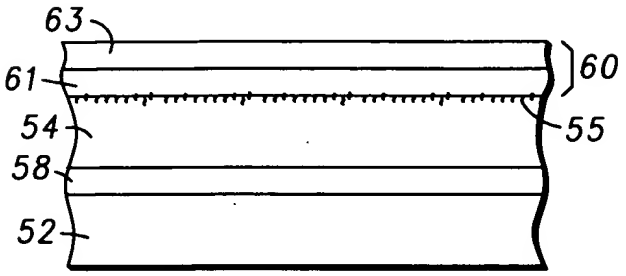

FIG. 11

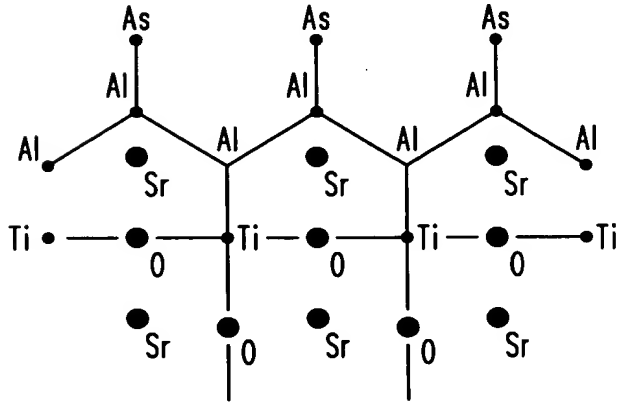

FIG. 15

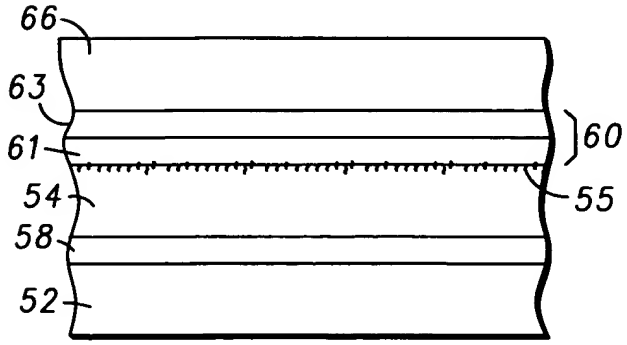

FIG. 12

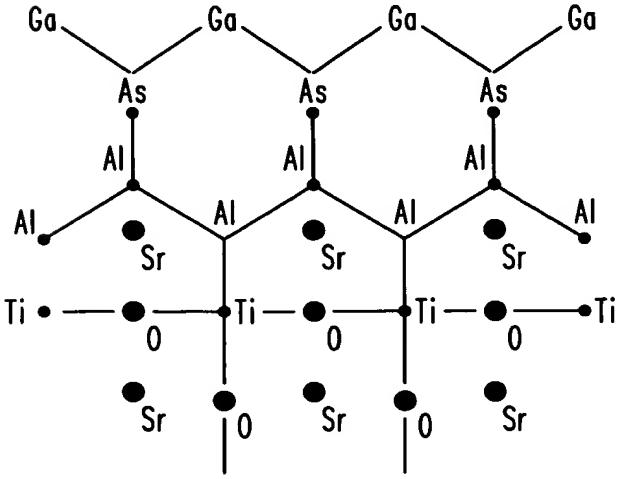

FIG. 16

09047841.074501

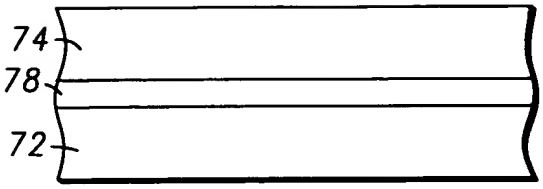

FIG. 17

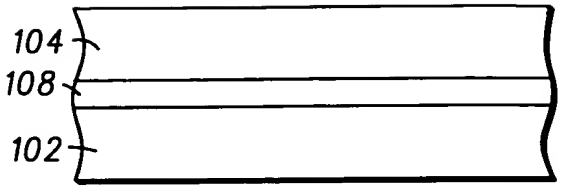

FIG. 21

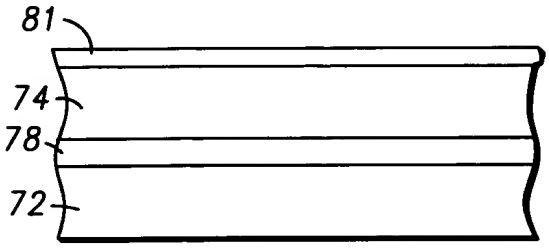

FIG. 18

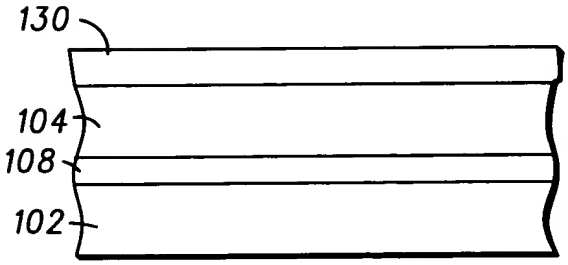

FIG. 22

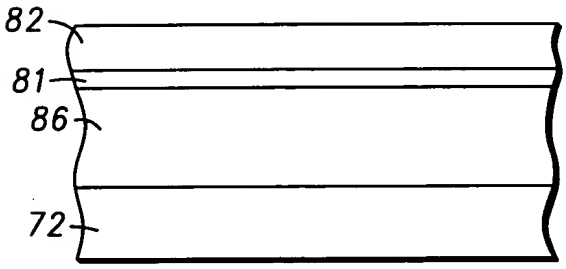

FIG. 19

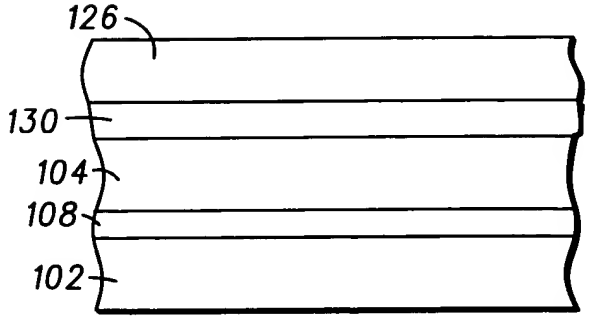

FIG. 23

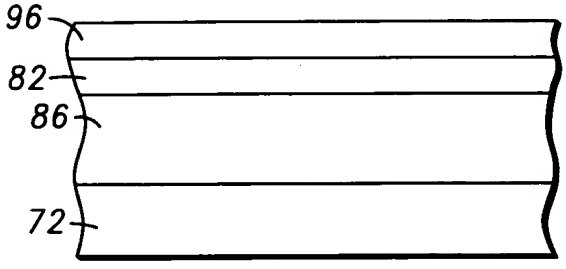

FIG. 20

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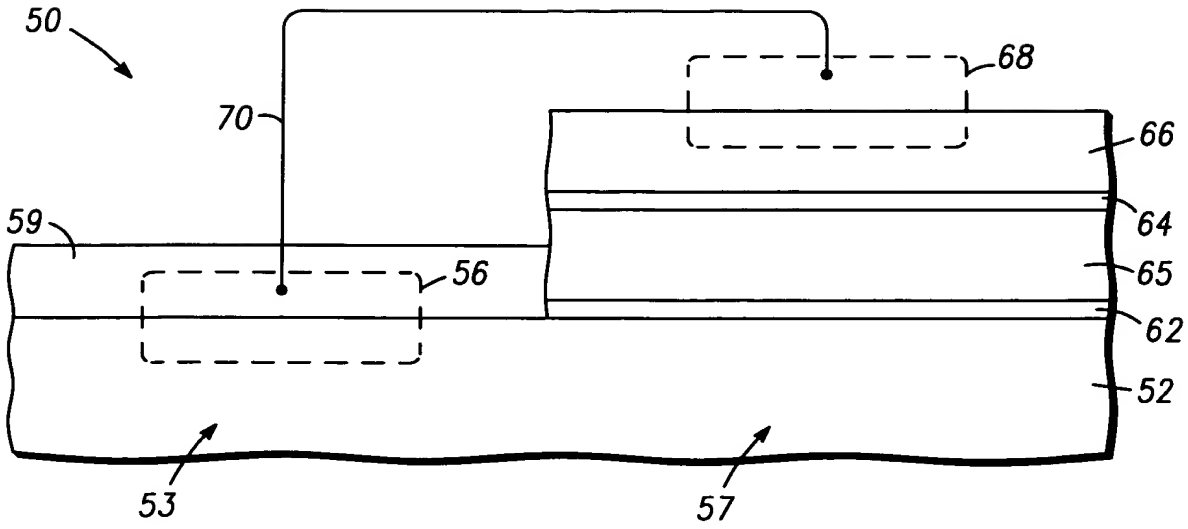
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FIG. 24

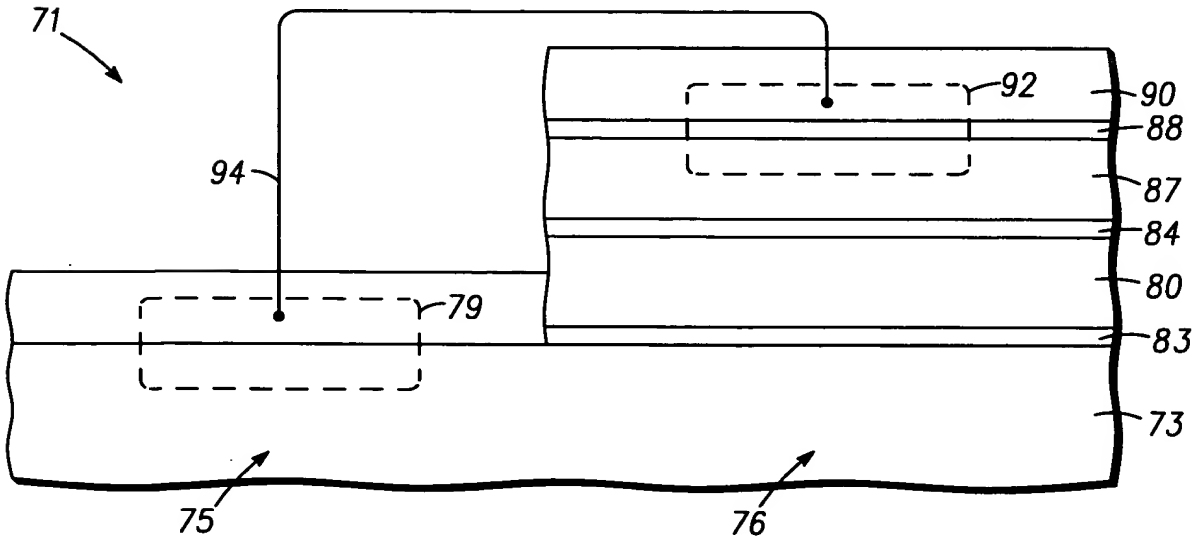
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FIG. 25

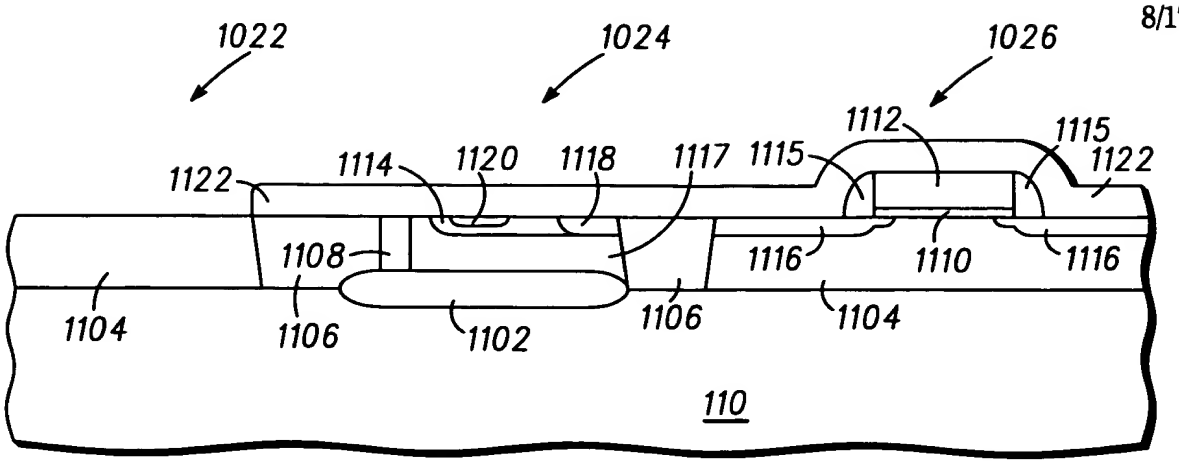

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FIG. 26

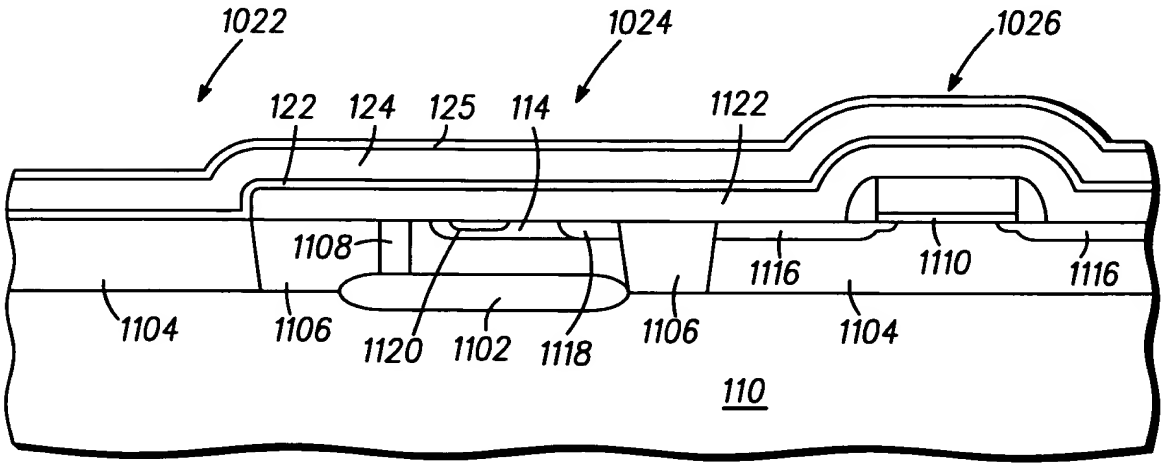

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FIG. 27

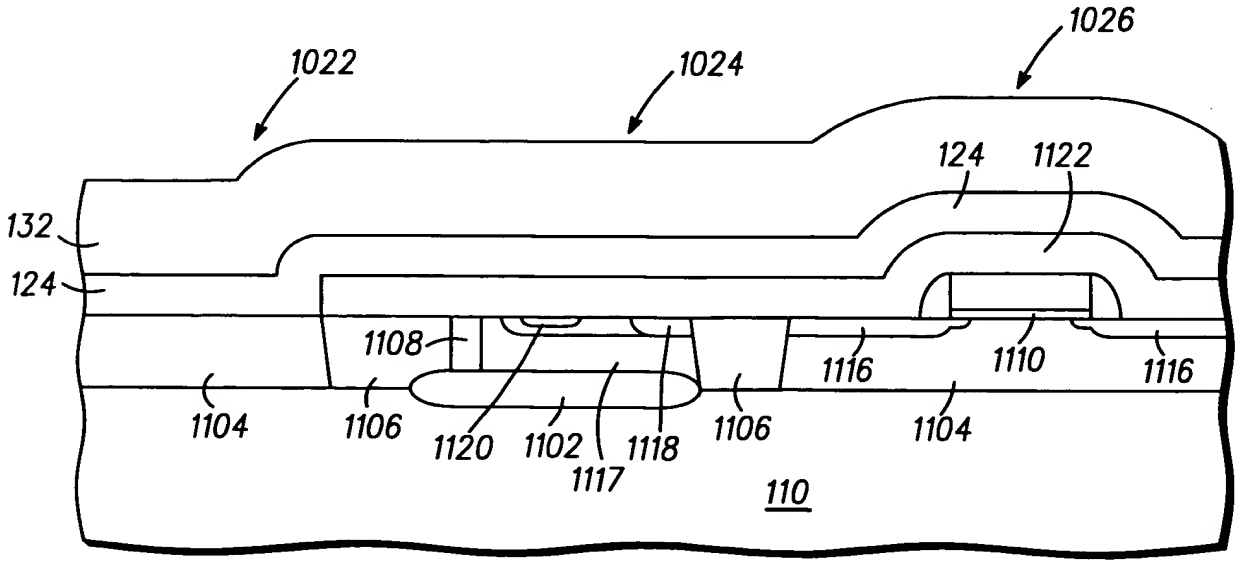

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FIG. 28

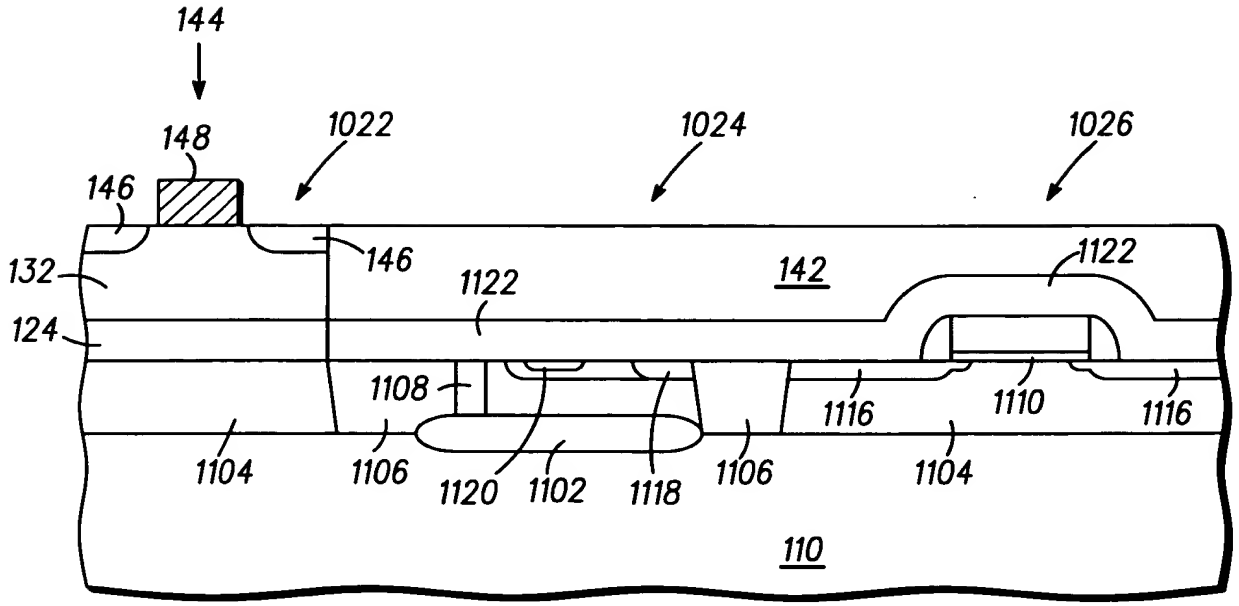
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FIG. 29

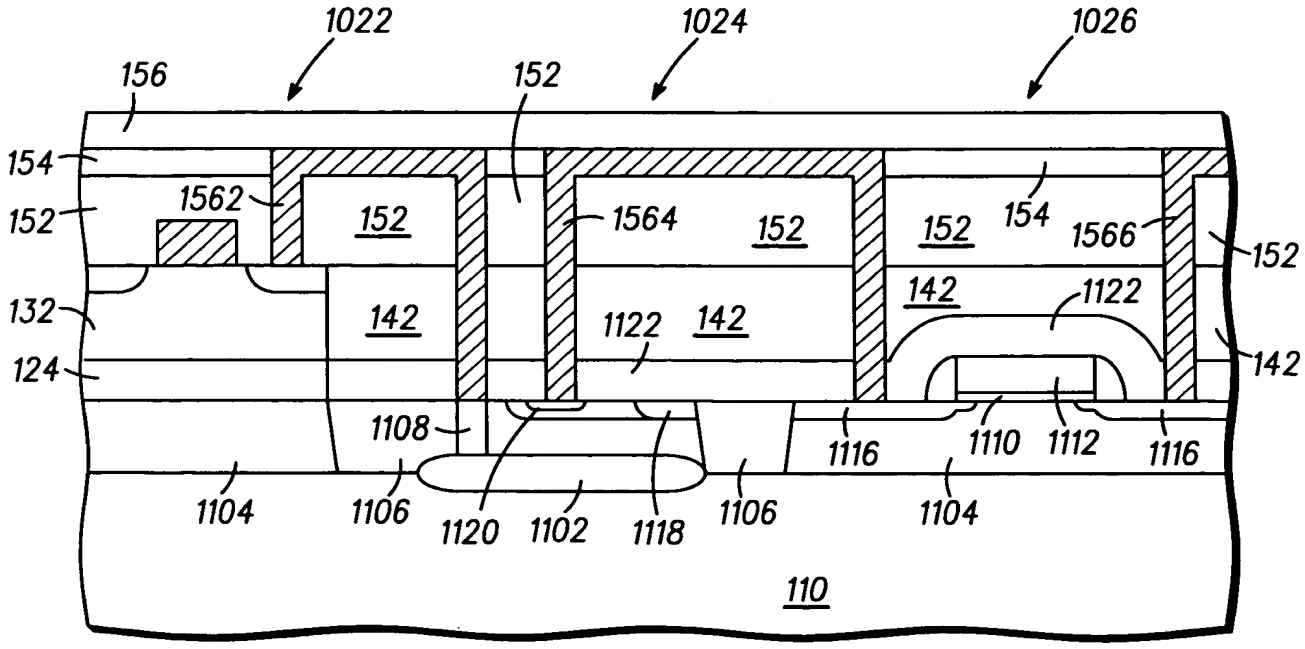
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FIG. 30

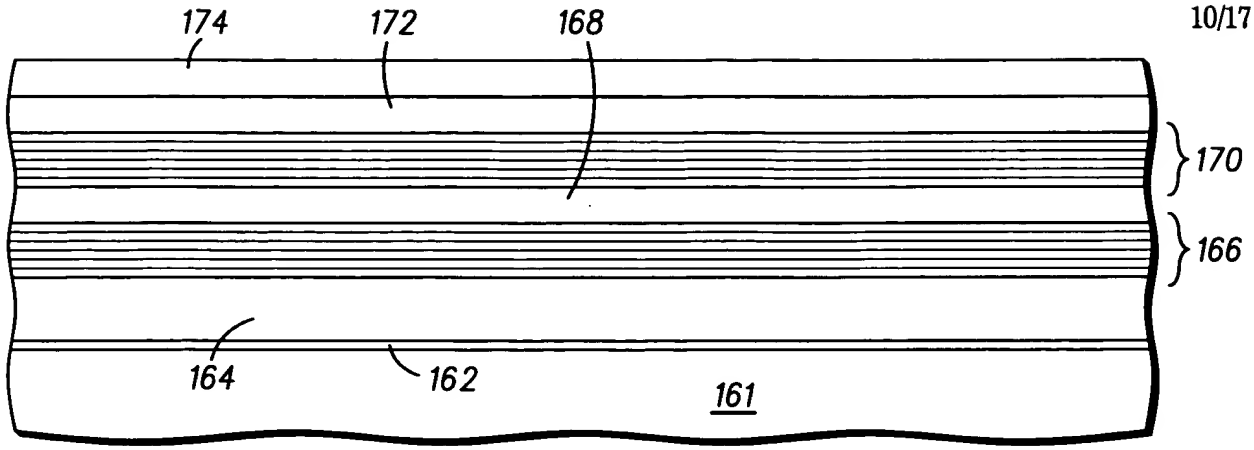

FIG. 31

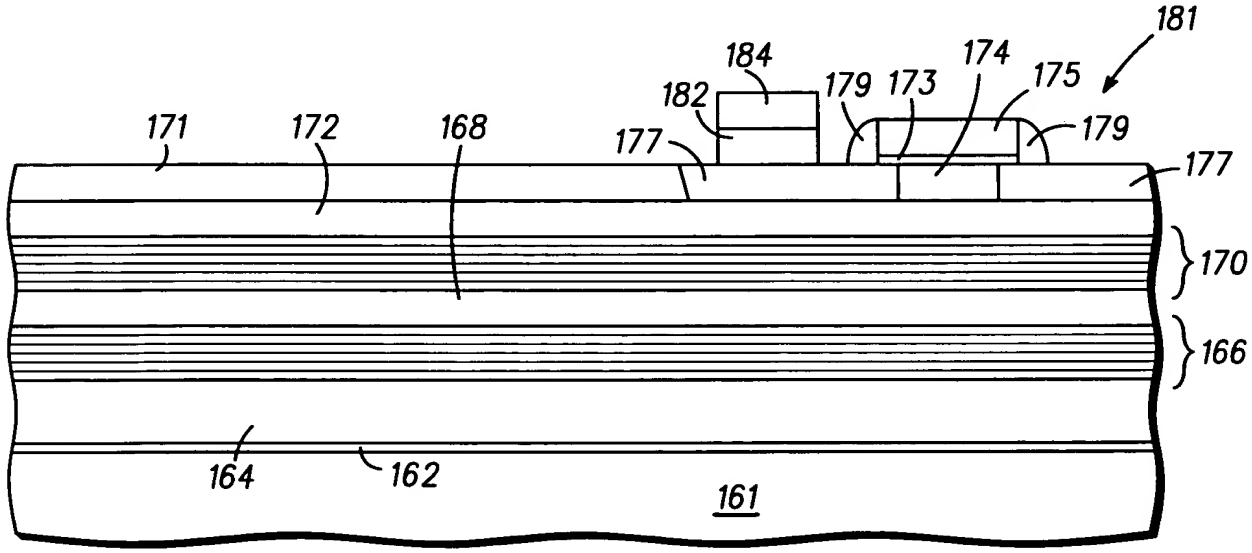

FIG. 32

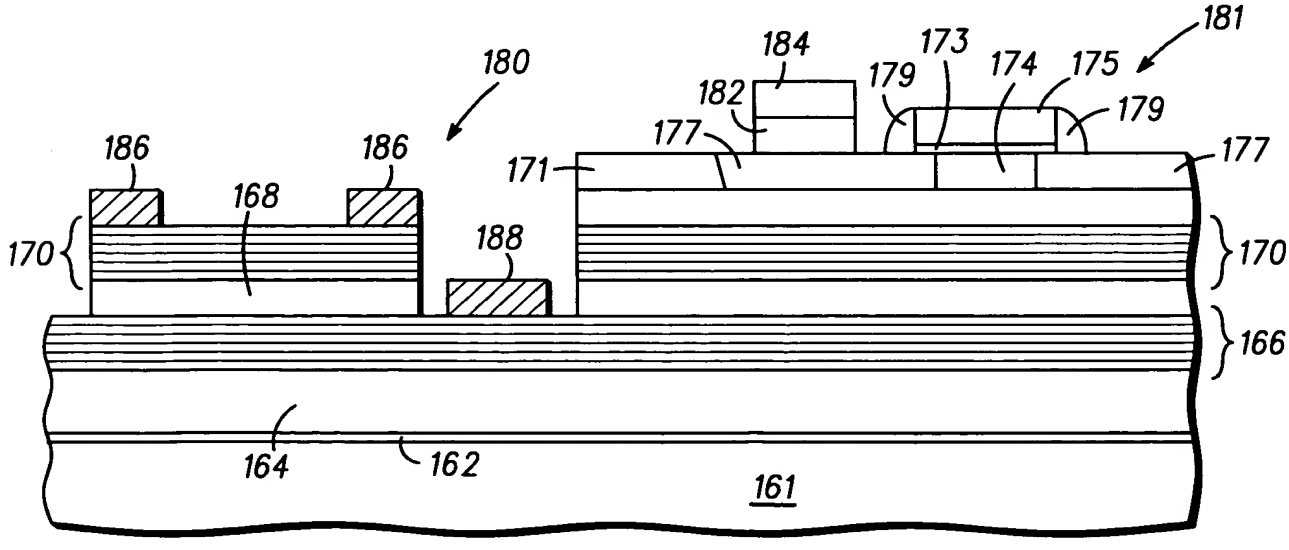

FIG. 33

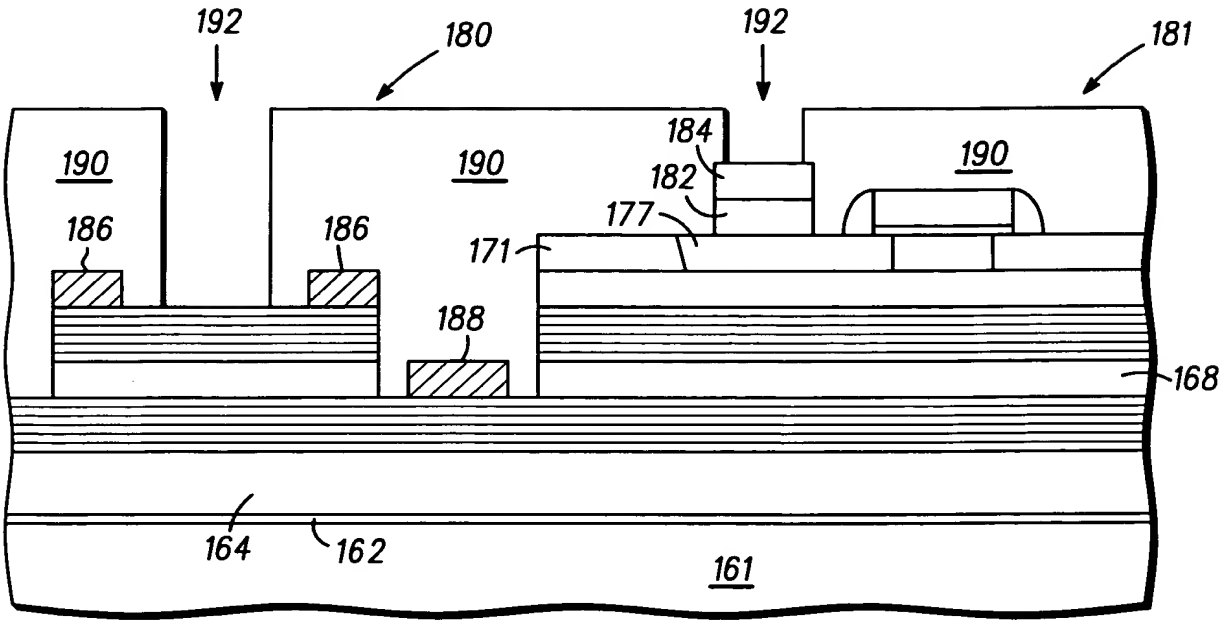

FIG. 34

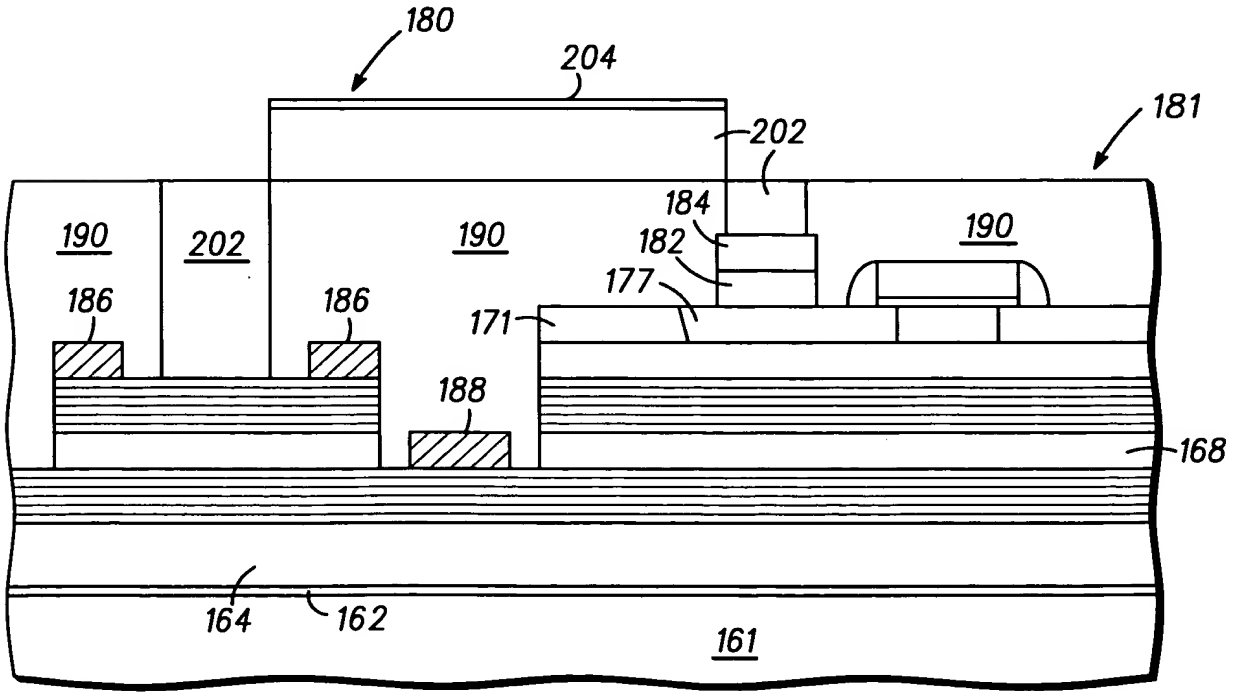

FIG. 35

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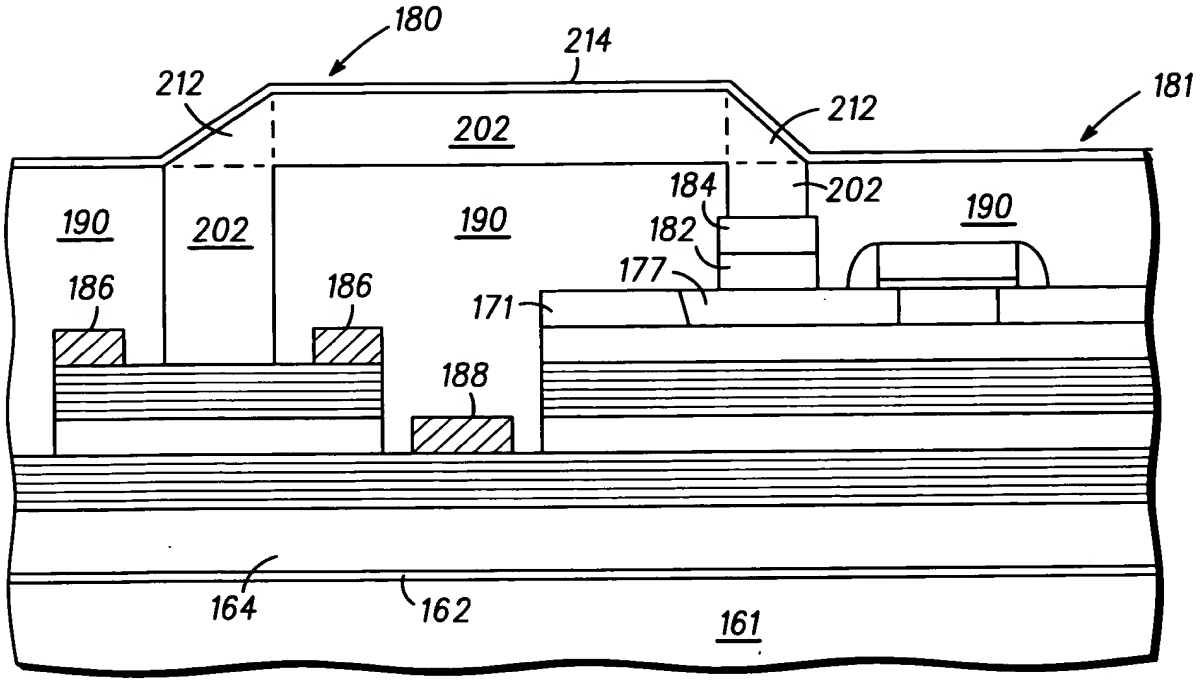

FIG. 36

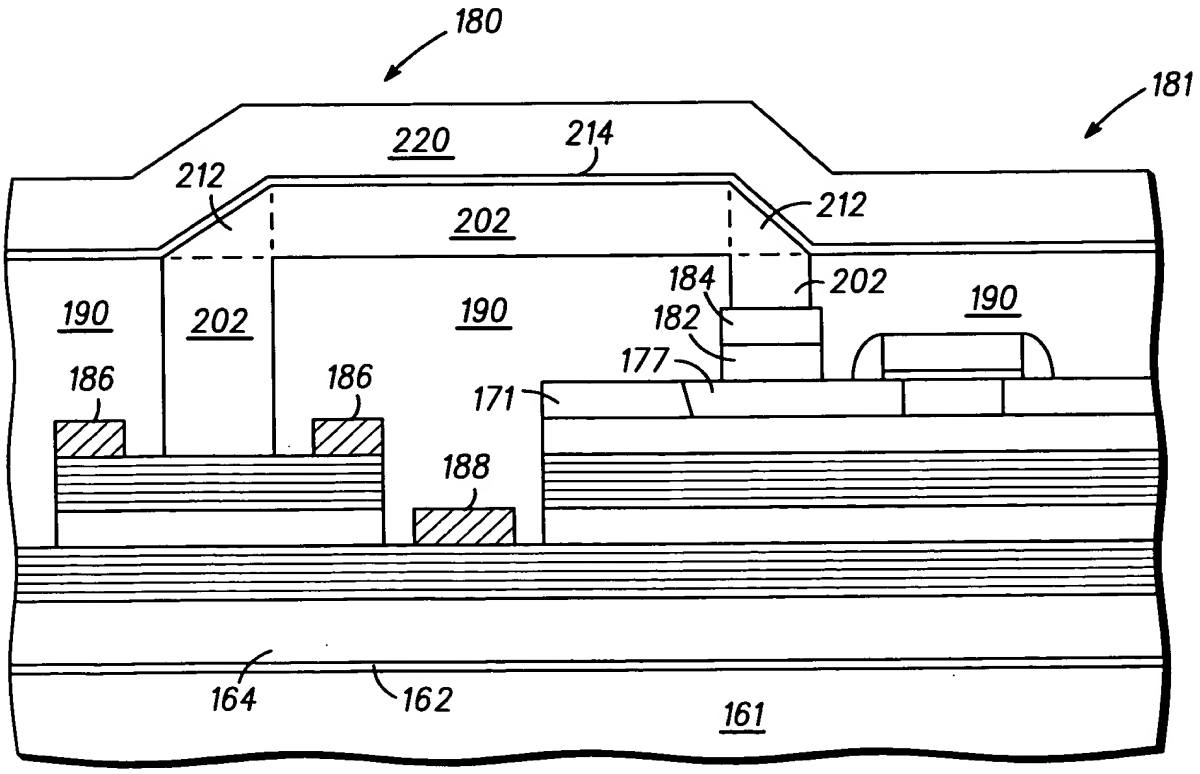

FIG. 37

Page 20 of 50 - 09/904,050

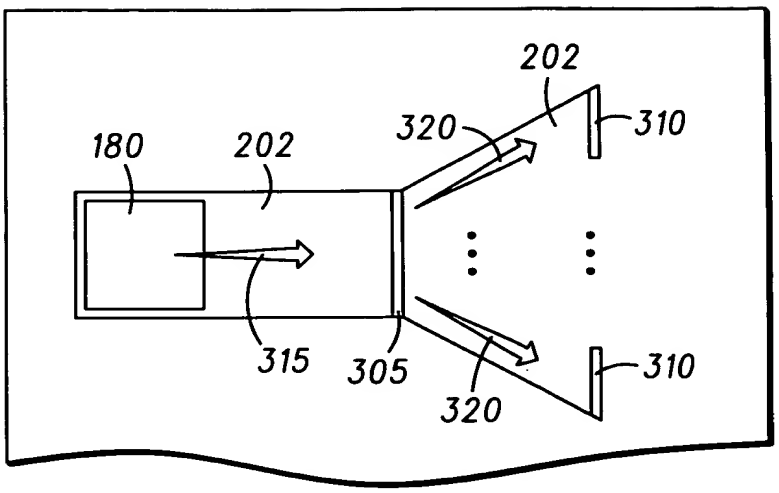

FIG. 38

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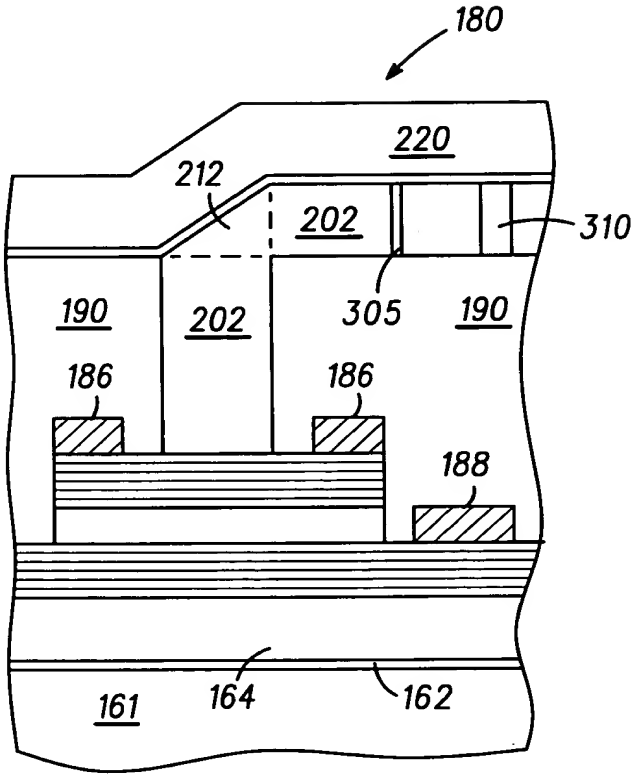

FIG. 39

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FIG. 40

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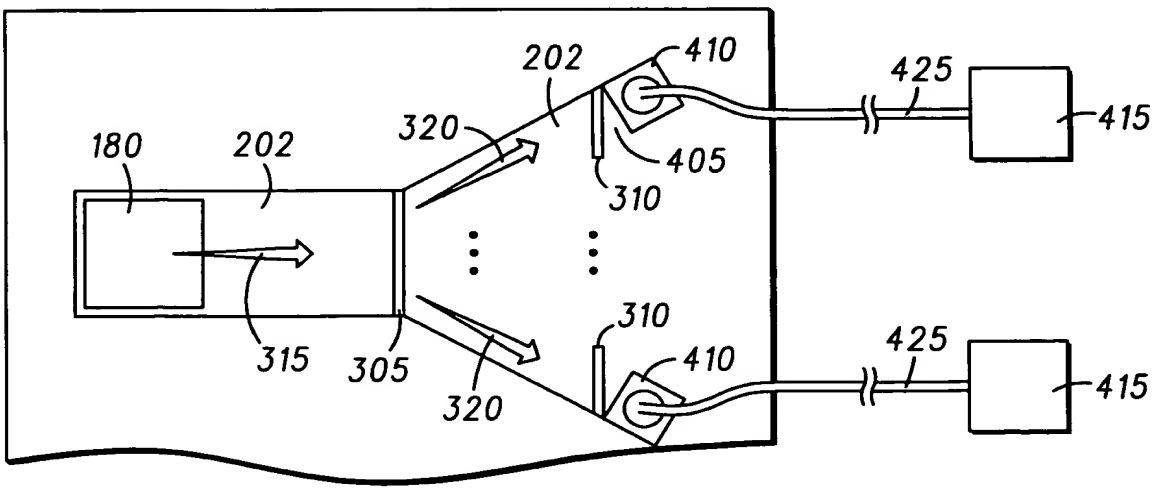

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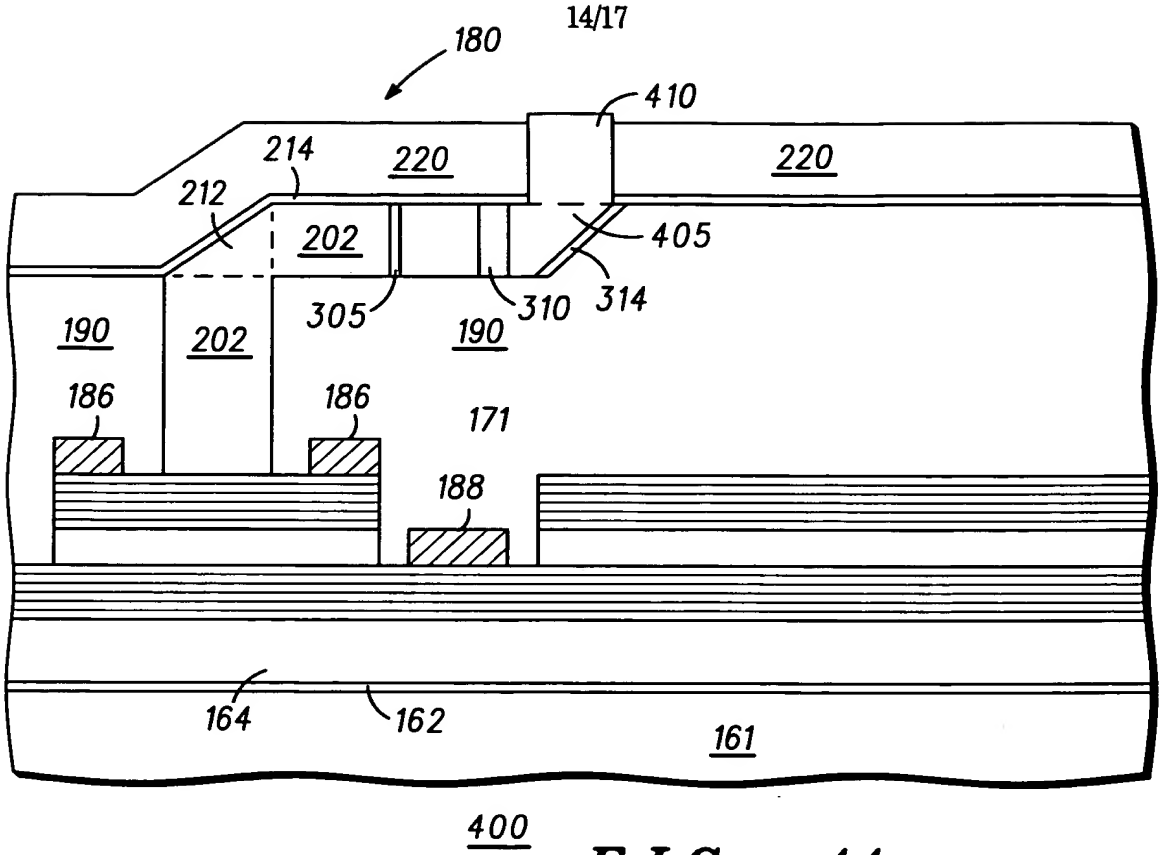
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FIG. 41

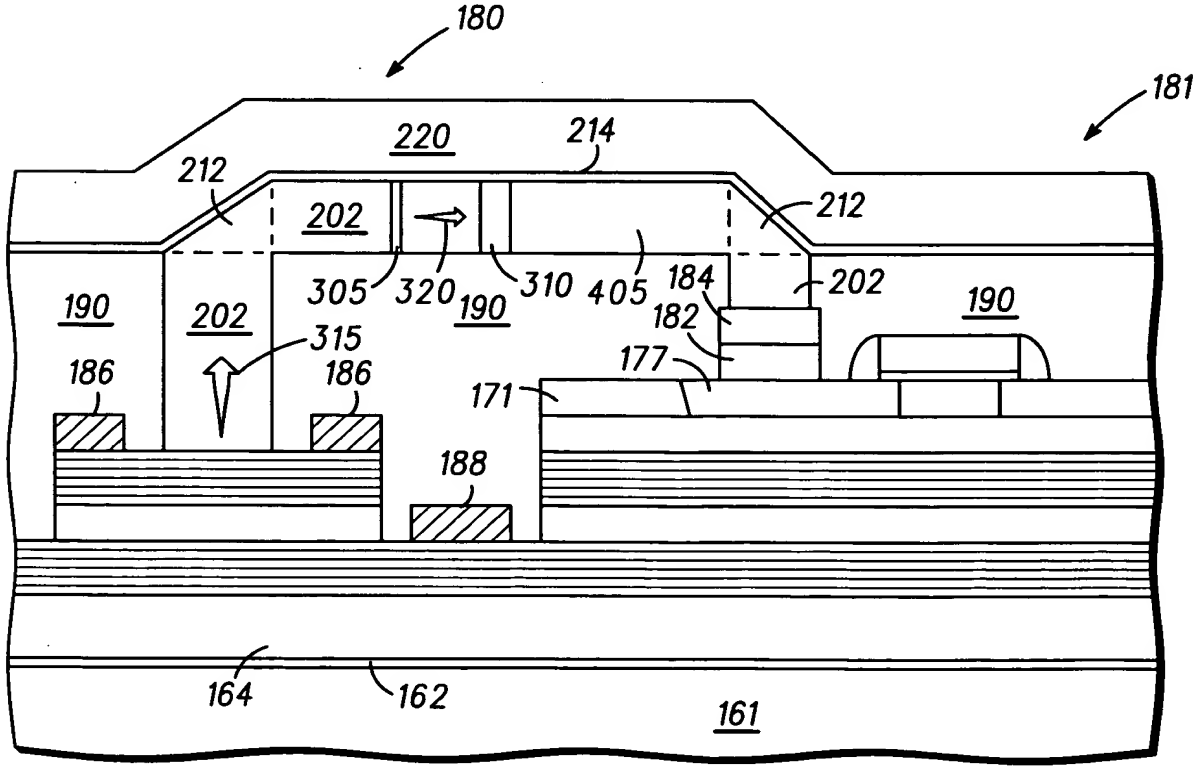
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FIG. 42

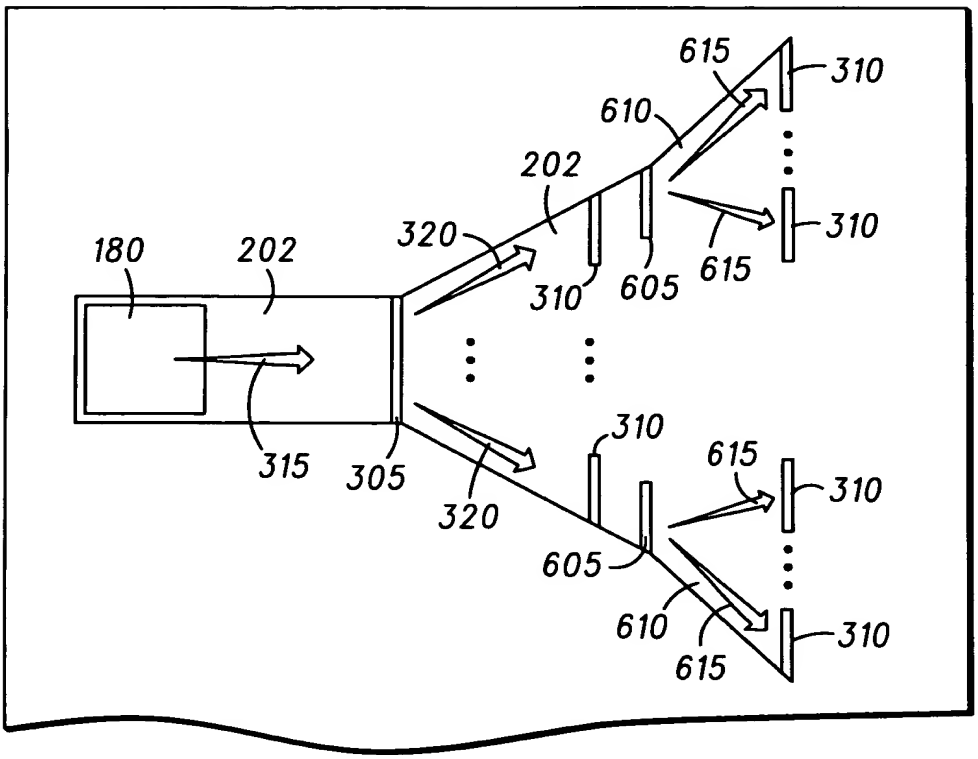
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FIG. 43

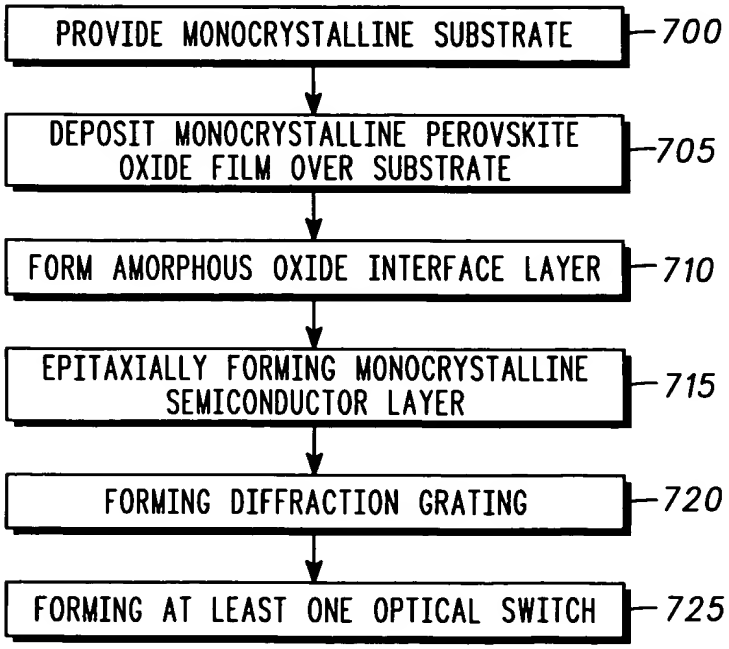
PROVIDE MONOCRYSTALLINE SUBSTRATE
700
DEPOSIT MONOCRYSTALLINE PEROVSKITE OXIDE FILM OVER SUBSTRATE
705
FORM AMORPHOUS OXIDE INTERFACE LAYER
710
EPITAXIALLY FORMING MONOCRYSTALLINE SEMICONDUCTOR LAYER
715
FORMING DIFFRACTION GRATING
720
FORMING AT LEAST ONE OPTICAL SWITCH
725

FIG. 44

	TRANSMITTANCE FUNCTION	INTENSITY PATTERN
RECTANGULAR APERATURE	$t(X_1, Y_1)=\mathrm{RECT}(\frac{x_1}{l_x})\mathrm{rect}(\frac{y_1}{l_y})$	$I(X_0, Y_0)=\frac{l_x^2 l_y^2}{2z^2}\mathrm{SIN}\ C^2(\frac{l_x X_0}{\lambda z})\,\mathrm{SIN}\ C^2(\frac{l_y Y_0}{\lambda z})$
CIRCULAR APERATURE	$t(r_1)=\mathrm{CIRC}(\frac{r_1}{l/2})$	$I(r_0)=(\frac{kl^2}{8z})^2\,[2\frac{J_1(klr_0/2z)}{klr_0/2z}]^2$
SINUSOIDAL AMPLITUDE GATING	$t(X,Y)=[\frac{1}{2}+\frac{m}{2}\cos(2\pi f_0 x)]\,\mathrm{RECT}(\frac{x}{l})\mathrm{RECT}(\frac{y}{l})$	$I(x_0, y_0)=[\frac{l^2}{2\lambda z}]^2\mathrm{SIN}\ C^2(\frac{l y_0}{\lambda z})\{\mathrm{SIN}\ C^2(\frac{l x_0}{\lambda z}) + \frac{m^2}{4}\mathrm{SIN}\ C^2[\frac{l}{\lambda z}(x_0+f_0\lambda z)]+\frac{m^2}{4}\mathrm{SIN}\ C^2[\frac{l}{\lambda z}(x_0-f_0\lambda z)]\}$
SINUSOIDAL PHASE GATING	$t(X_1,Y_1)=\mathrm{EXP}[\,j\frac{m}{2}\mathrm{SIN}(2\pi f_0 x_1)]\,\mathrm{RECT}(\frac{x_1}{l})\mathrm{RECT}(\frac{y_1}{l})$	$I(x_0, y_0)=(\frac{l^2}{\lambda z})^2\sum_{Q\ldots\alpha}^{\alpha} J_{l^2}(\frac{m}{2})\,\mathrm{SIN}\ C^2[\frac{l}{\lambda z}(x_0-q f_0\lambda z)]\,\mathrm{SIN}\ C^2(\frac{l y_0}{\lambda z})$

FIG. 45

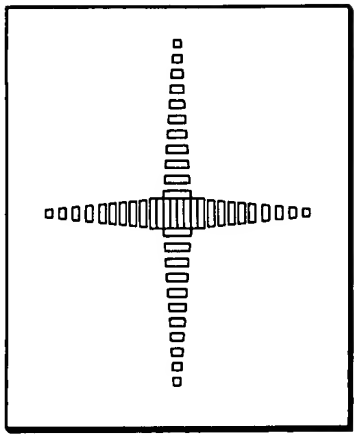

FIG. 46

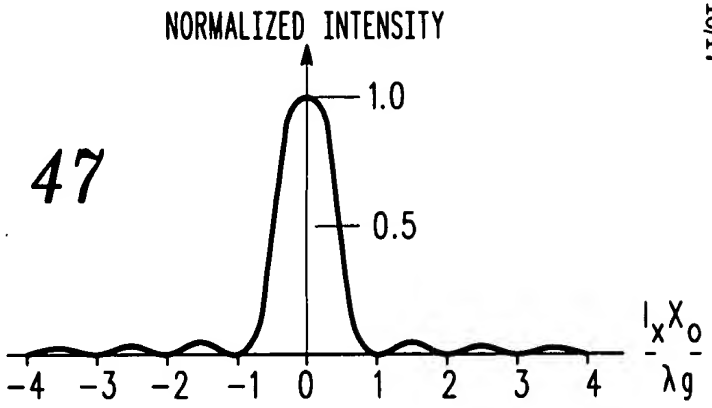

FIG. 47

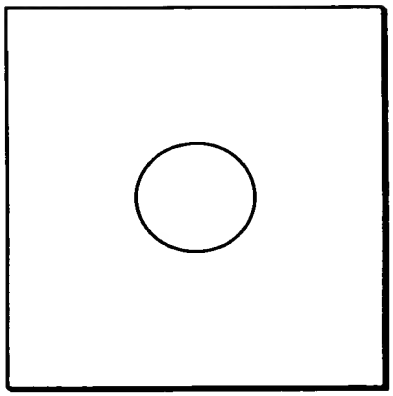

FIG. 48

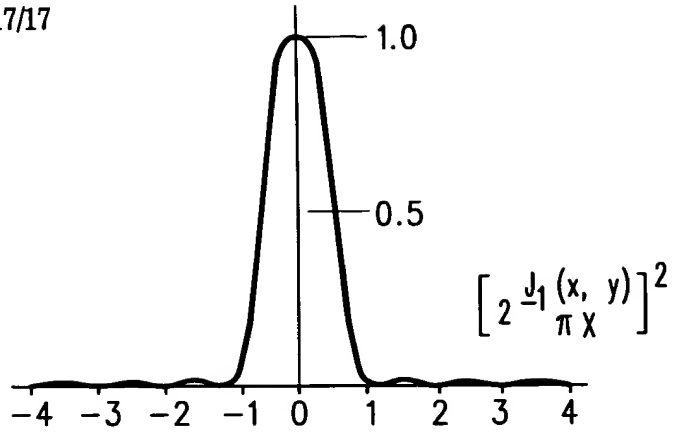

FIG. 49

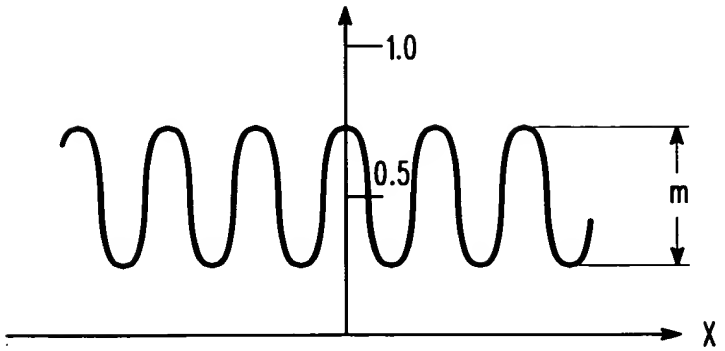

FIG. 50

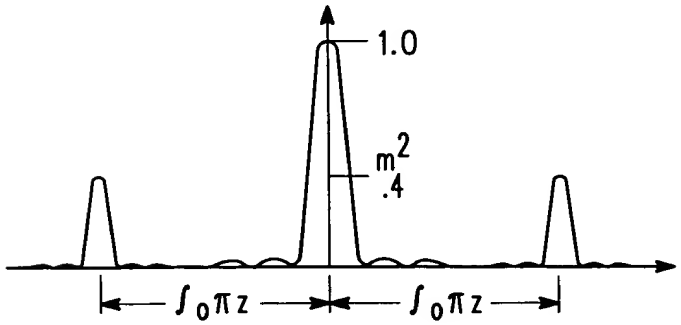

FIG. 51

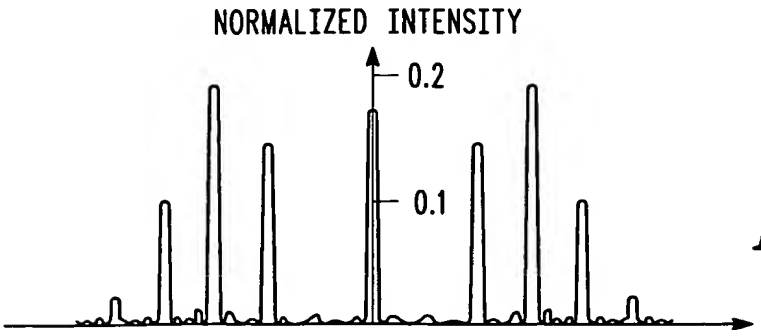

FIG. 52